Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. - 46. (Cancelled).

47. (Withdrawn)   A method for measuring glucose in a body fluid of a subject, the method comprising:

measuring impedance of a first body tissue with at least one pair of an injection electrode for injection of electrical current into said first body tissue and a sensing electrode for detecting the ensuing voltage of said first body tissue;

wherein said injection electrode is in contact with said first body tissue or a second body tissue;

wherein said sensing electrode is in contact with said first or said second body tissue;

and determining the amount of glucose in the body fluid based upon the measured impedance.

48. (Withdrawn)   The method of claim 47 wherein impedance of the first body tissue is measured with one pair of electrodes.

49. (Withdrawn)   The method of claim 47 wherein impedance of the first body tissue is measured with two pairs of electrodes, each pair being an injection electrode and a sensing electrode.

50. (Withdrawn)   The method of claim 47 wherein the injection electrode and the sensing electrode are in electrically conductive contact with the first body tissue.

51. (Withdrawn)   The method of claim 47 wherein the injection electrode and the sensing electrode are in electrically conductive contact with the second body tissue.

52. (Withdrawn)   The method of claim 47 wherein the first body tissue is a sub-dermal body tissue and the second body tissue is skin.

53. (Withdrawn)   The method of claim 47 wherein the first body tissue is a first sub-dermal body tissue and the second body tissue is a second sub-dermal body tissue, wherein said first and second sub-dermal body tissues are the same or different.

54. (Withdrawn) The method of claim 47 wherein the impedance is measured at a plurality of frequencies in a range of 1 Hz to 10 MHz.

55. (Withdrawn)   The method of claim 47 wherein the body fluid is blood.

56. (Withdrawn)   The method of claim 47 wherein determining the amount of glucose includes comparing the measured impedance with a predetermined relationship between impedance of the sub-dermal body tissue and blood glucose level.

57. (Withdrawn)   The method of claim 47 wherein the injecting electrodes and the sensing electrodes are in operative connection with a microprocessor programmed to determine the amount of glucose level based upon the measured impedance.

58. (Withdrawn)   The method of claim 57 wherein the microprocessor is programmed to determine the glucose level of a subject based on a principal component analysis and a partial least squares regression analysis of the measured impedance.

59. (Withdrawn)   The method of claim 57 wherein an indicator is operatively connected to the microprocessor for indication of the determined glucose level.

60. (Withdrawn)   The method of claim 59 wherein the indicator comprises a visual display to the subject.

61. (Withdrawn)   A method for measuring glucose in a body fluid of a subject, the method comprising:

measuring impedance of a first body tissue with two pairs of electrodes, each pair being an injection electrode for injecting electrical current into said first body tissue and a sensing electrodes for detecting the ensuing voltage of said first body tissue, wherein said injection electrodes and said sensing electrodes are in electrically conductive contact with said first body tissue or a second body tissue;

and determining the amount of glucose in the body fluid based upon the measured impedance.

62. (Withdrawn)   The method according to claim 61 wherein one pair of electrodes is in electrically conductive contact at a first position on the subject and the second pair of electrodes is placed at a second position on the subject, and wherein impedance of a sub-dermal body tissue is measured between the first and second positions.

63. (Withdrawn)   The method of claim 61 wherein the injection and the sensing electrodes are in electrically conductive contact with the first body tissue.

64. (Withdrawn)   The method of claim 61 wherein the injection electrodes and the sensing electrodes are in electrically conductive contact with the second body tissue.

65. (Withdrawn)   The method of claim 61 wherein the first body tissue is a subdermal body tissue and the second body tissue is skin tissue.

66. (Withdrawn)   The method of claim 61 wherein the first body tissue is a first sub-dermal body tissue and the second body tissue is a second sub-dermal body tissue, wherein said first and second sub-dermal body tissues are the same or different.

67. (Withdrawn)   The method of claim 65 wherein the skin is treated with saline solution prior to measuring impedance.

68. (Withdrawn)   The method according to claim 65, wherein an electrically conductive gel is applied to the skin to enhance the conductive contact of the electrodes with the skin prior to measuring impedance.

69. (Withdrawn)   The method of claim 65 wherein the sub-dermal body tissue is muscle.

70. (Withdrawn)   The method of claim 65 wherein the sub-dermal body tissue is fat.

71. (Withdrawn)   The method of claim 65 wherein the sub-dermal body tissue is blood vessels.

72. (Withdrawn)   The method of claim 66 wherein the first sub-dermal body tissue and the second sub-dermal body tissue are each selected from the group consisting of muscle, fat, and blood vessels.

73. (Withdrawn)   The method according to claim 61 wherein the body fluid is blood.

74. (Withdrawn)   The method of claim 65 wherein determining the amount of glucose includes comparing the measured impedance with a predetermined relationship between impedance of the sub-dermal body tissue and blood glucose level.

75. (Withdrawn)   The method of claim 61 wherein the injecting electrodes and the sensing electrodes are in operative connection with a microprocessor programmed to determine the amount of glucose level based upon the measured impedance.

76. (Withdrawn)   The method of claim 75 wherein the microprocessor is programmed to determine the glucose level of a subject based on a principal component analysis and a partial least squares regression analysis of the measured impedance.

77. (Withdrawn)   The method of claim 75 wherein an indicator is operatively connected to the microprocessor for indication of the determined glucose level.

78. (Withdrawn)   The method of claim 77 wherein the indicator comprises a visual display to the subject.

79. (Currently amended)   An apparatus for measuring or monitoring blood glucose level in a subject, the apparatus being adapted to measure impedance of an electrical current flowing through sub-dermal or subcutaneous body tissue of the subject and to correlate said impedance to a blood glucose level of said subject, the apparatus comprising:
　　　- at least one pair of injection electrodes adapted for injection of the electrical current into the body tissue;
　　　- at least one pair of sensing electrodes, each of the sensing electrodes being adapted for detecting the voltage caused by the current injected by each of the injection electrodes, after flowing through said body tissue; and
　　　―　　a means for measuring the impedance of said current; and
　　　- a microprocessor operatively connected to the means for measuring impedance both the at least one pair of injection electrodes and the at least one pair of sensing electrodes and being programmed for correlating the measured impedance with a

predetermined relationship between impedance and glucose levels and for calculating the blood glucose level in the subject.

80. (Previously presented) The apparatus of claim 79, wherein at least one of said pair of injection electrodes or said pair of sensing electrodes is adapted for insertion into the sub-dermal or subcutaneous body tissue.

81. (Cancelled).

82. (Previously presented) The apparatus of claim 79 wherein the sub-dermal body tissue is muscle, fat or blood vessels.

83-85. (Cancelled).

86. (Previously presented) The apparatus of claim 79 further comprising an amperometer, a voltmeter and source of electric current for measuring the impedance of the body tissue between said injection electrodes and said sensing electrodes; wherein the amperometer and source of electric current are in operative connection with the injection electrodes and the voltmeter is in operative connection with the sensing electrodes.

87. (Previously presented) The apparatus of claim 86 wherein said electrical current is provided at a plurality of frequencies in a range of 1 Hz to 10 MHz.

88. (Previously presented) The apparatus of claim 79 wherein the microprocessor is operatively connected to an insulin pump and includes means to adjust the amount of insulin flow via the pump to the subject based on the calculated blood glucose level.

89. (Previously presented) The apparatus of claims 79 further comprising means for calibrating the apparatus against a directly measured glucose level of said subject.

90. (Previously presented) The apparatus of claim 79 wherein the microprocessor is programmed to determine the glucose level of a subject based on a principal component analysis and a partial least squares regression analysis.

91. (Previously presented) The apparatus of claim 79 further comprising an indicator operatively connected to the microprocessor for indication of the calculated blood glucose level.

92. (Previously presented) The apparatus of claim 79 wherein the apparatus is adapted to be implanted in the body tissue for which the impedance is to be measured.

93. (Previously presented) The apparatus of claim 91 wherein the indicator comprises a visual display.

94. (Cancelled).

95.(Previously presented) The apparatus of claim 79 wherein said electrodes are adapted to measure impedance at one or more depths ranging from 0.1 mm to 2 mm.